AMENDMENTS TO THE CLAIMS

Listing of Claims:

Claims 1-12 (cancelled)

13. (currently amended) A method for calculating the relative volumetric flow-rates of at least one of the phases of a multiphase effluent flowing in a well, said method comprising a first step of acquiring local volumetric fractions and/or velocities of said phases across a section of the well at a certain depth, and wherein the ~~said~~ method further ~~comprising~~comprises:

- correcting said local volumetric fraction and/or velocity measurements in order to make them consistent with each other and/or with the effluent flow conditions;
- selecting a suitable flow model mathematically representing the effluent flow;
- interpolating said local volumetric fractions measurements and/or said local velocity measurements by the selected flow model in order to obtain a volumetric fraction profile and/or a velocity profile for at least one phase of the effluent across said section of the well at said depth;
- calculating the relative volumetric flow rates of said at least one phase by integration of said volumetric fraction and/or velocity profiles over said section of the well at said depth.

14. (previously presented) The method according to claim 1, wherein the correcting step comprises correction of the systematic measurement errors due to measurement means.

15. (previously presented) The method according to claim 1, wherein the correcting step comprises checking coherence of the local volumetric fraction measurements between themselves and/or coherence of the local velocity measurements between themselves.

16. (previously presented) The method according to claim 1, wherein the correcting step comprises checking for mutual coherence between the local volumetric fraction measurements and the local velocity measurements.

17. (currently amended) The method according to claim 1, wherein the correcting step comprises refining the local volumetric fraction measurements and the local velocity measurements ~~thanks to the result of the analysis respectively of the local velocity measurements and the local volumetric fraction measurements~~.

18. (previously presented) The method according to claim 1, wherein the step of selecting the suitable flow model is automatically done by the analysis of the set of volumetric fractions and/or velocity measurements.

19. (previously presented) The method according to claim 1, further comprising the following steps:

- measuring the velocity of the cable with which the volumetric fractions and velocity measurements means are lowered in the well;
- determining the geometric characteristics of the well.

20. (previously presented) The method according to claim 1, further comprising the determination of the relative bearing of the well.

21. (previously presented) The method according to claim 1, wherein the step of selecting the flow model is verified after some corrections have been done on the local volumetric fraction and velocity measurements.

22. (previously presented) The method according to claim 1, wherein the steps are achieved as follows:

- correcting the systematic measurement errors due to measurement means;
- selecting a suitable flow model;
- checking coherence of the local volumetric fraction measurement between themselves and/or coherence of the local velocity measurements between themselves;
- checking for mutual coherence between the local volumetric fraction measurements and the local velocity measurements;
- refining the local volumetric fraction measurements and the local velocity measurements thanks to the result of the analysis respectively of the local velocity measurements and the local volumetric fraction measurements;
- re-doing the previous steps until the local volumetric fraction and/or velocity measurements fit the flow model that has been selected;
- interpolating said local volumetric fraction measurements and/or said local velocity measurements by the selected flow model in order to obtain a volumetric fraction profile and/or a velocity profile for at least one phase of the effluent across said section of the well at said depth;
- calculating the relative volumetric flow rates of said at least one phase by integration of said volumetric fraction and/or velocity profiles over said section of the well at said depth.

23. (previously presented) The method according to claim 1, wherein the local volumetric fraction measurements are the water volumetric fraction and/or the gas volumetric fraction in the well effluent, the oil volumetric fraction in the effluent being deduced from the previous one(s).

24. (previously presented) The method according to claim 1, wherein the local velocity measurements are acquired by a set of spinners.